

A.4.3 Ionospheric, Thermospheric, and Mesospheric Physics

1. Scope of Program

Proposers interested in submitting in response to this program element should also read Section A.4.0 of this Appendix for an overview of The Sun-Earth Connection science theme of the NASA Office of Space Science.

The Ionospheric, Thermospheric, and Mesospheric (ITM) Physics program supports studies of the mesosphere and thermosphere regions of the upper atmosphere, the ionosphere, and the auroral processes of Earth through theory, simulation, modeling, indepth data analysis and synthesis, and laboratory studies. It also supports the exploration and demonstration of new instrument concepts pertinent to discipline goals, but does not support the development of space flight instruments *per se*. The goal of the ITM program is to understand the formation, structure, coupling, and dynamics of these systems. Magnetosphere-ionosphere coupling (which includes auroral phenomena) is treated within the ITM program. The primary emphasis in all cases is the study of processes that occur naturally in space, including the study of artificially induced perturbations that elucidate natural processes. Earth's ITM regions are an important part of the solar-terrestrial chain. This program element thus also supports studies of solar-terrestrial processes, including studies of coupling processes outward into the magnetosphere and inward to the upper atmosphere.

2. Programmatic Information

Proposals based on any *in situ* and/or space-based remote sensing data relevant to these study areas are appropriate. However, the use of ground-based data is appropriate only if it can be shown that it is clearly and directly relevant to flight program goals. The program also supports laboratory studies that directly address problems in ITM physics.

Total funding for the existing ITM program has been about \$4M per year. Of the 59 grants currently being funded, approximately one third will expire in FY 1998.

NASA OSS also supports research on magnetospheric, ionospheric, thermospheric, and mesospheric physics using a variety of methods for providing low cost access to space, including standard and long-duration balloons, sounding rockets, Shuttle-based carriers, Space Station, and sounding rocket-class payloads flown as secondary payloads or on other flights of opportunity. See the separate Magnetospheric and ITM Suborbital Program description in Section A.4.6 of this Appendix for further details.

The schedules for submission of the Notice of Intent and proposal are given in Table 1 of the cover letter of this NRA. The World Wide Web site for submitting both the NOI and

the *Cover Page/Proposal Summary* (see Appendix C, Section C.5.3) is <<http://props.oss.hq.nasa.gov>>; proposers without access to the Web or who experience difficulty in using this site may contact Ms. Debra Tripp (E-mail: deb.tripp@hq.nasa.gov) for assistance. Hard copies of the proposals are to be delivered to:

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